CLAIMS

What is claimed is:

1. A method for fabricating a soft ferromagnetic film structure with controlled edge stress anisotropy and enhanced magnetization switching speed, comprising the steps of:

forming a soft ferromagnetic film structure, said soft ferromagnetic film structure having one or more edges exhibiting edge stress anisotropy; and

forming a non-ferromagnetic film structure along said one or more edges to induce stress contributions therein that control said edge stress anisotropy.

2. A method in accordance with Claim 1 wherein said soft ferromagnetic film structure comprises a transition metal alloy.

3. A method in accordance with Claim 1 wherein said non-ferromagnetic film structure comprises a material selected from the group consisting of metallic materials and non-metallic materials.

4. A method in accordance with Claim 1 wherein said non-ferromagnetic film structure is formed to adjust tensile stress generally perpendicularly to said one or more edges of said soft ferromagnetic film structure.

5. A method in accordance with Claim 1 wherein one or both of said soft ferromagnetic film structure and said non-ferromagnetic film structure are formed using an electroplating process.

6. A method in accordance with Claim 1 wherein one or both of said soft ferromagnetic film structure and said non-ferromagnetic film structure are formed using a deposition process.

7. A method in accordance with Claim 1 wherein said soft ferromagnetic film structure comprises a material from the group consisting of alloys of nickel-iron (permalloy), nickel-iron-cobalt alloys, Sendust and alloys of cobalt-zirconium-niobium, cobalt-zirconium-tantalum, and cobalt-iron-boron.

8. A method in accordance with Claim 1 wherein said non-ferromagnetic film structure comprises a material from a first metal group consisting of palladium, copper and nickel-phosphorus alloy or a second non-metal group consisting of oxides of alumina and oxides of silicon.

9. A method in accordance with Claim 1 wherein said soft ferromagnetic film structure is a magnetic write head yoke structure.

10. A method in accordance with Claim 1 wherein said soft ferromagnetic film structure is an MRAM structure or a thin film inductor for RF or microwave circuits.

11. A magnetic read/write head transducer, comprising:

a yoke formed from first and second pole pieces extending from a back gap region thereof to a pole tip region and sandwiching an inductive coil;

said pole pieces each being formed with a magnetic domain-controlled, patterned soft ferromagnetic film structure having enhanced magnetization switching speed;

non-ferromagnetic film structures formed along patterned edges of said soft ferromagnetic film structures; and

said non-ferromagnetic film structures being adapted to induce stress contributions in said soft ferromagnetic film structures to control edge stress anisotropy and magnetic domain orientation therein.

12. A transducer in accordance with Claim 11 wherein said soft ferromagnetic film structures comprise a transition metal alloy.

13. A transducer in accordance with Claim 11 wherein said non-ferromagnetic film structures comprise a material selected from the group consisting of metallic materials and non-metallic materials.

14. A transducer in accordance with Claim 11 wherein said non-ferromagnetic film structures are formed to adjust tensile stress generally perpendicularly to patterned edges of said soft ferromagnetic film structures.

15. A transducer in accordance with Claim 11 wherein one or both of said soft ferromagnetic film structures and said non-ferromagnetic film structures are electroplated structures.

16. A transducer in accordance with Claim 11 wherein one or both of said soft ferromagnetic film structures and said non-ferromagnetic film structures are non-plated deposited structures.

17. A transducer in accordance with Claim 11 wherein said soft ferromagnetic film structures comprise a material from the group consisting of alloys of nickel-iron (permalloy), nickel-iron-cobalt alloys, Sendust and cobalt-zirconium-niobium alloys.

18. A transducer in accordance with Claim 11 wherein said non-ferromagnetic film structures comprises a material from a first metal group consisting of palladium, copper and nickel-phosphorus alloy or a second non-metal group consisting of oxides of alumina and oxides of silicon.

19. A transducer in accordance with Claim 11 wherein said soft ferromagnetic film structures define the entirety of said pole pieces.

20. A method in accordance with Claim 11 wherein said soft ferromagnetic film structures define the pole tips of said pole pieces.

21. A disk drive having a housing, a rotatable magnetic recording medium in the housing, an actuator carrying an actuator arm, a suspension, and a magnetic read/write transducer disposed in adjacent relationship with the recording medium, said transducer comprising:

a yoke formed from first and second pole piece structures sandwiching an inductive coil;

said pole piece structures each including a magnetic domain-controlled, patterned soft ferromagnetic film having enhanced magnetization switching speed;

said pole piece structures each further including non-ferromagnetic material formed along patterned edges of said patterned film; and

said non-ferromagnetic material being adapted to induce stress contributions in said patterned film to control edge stress anisotropy and magnetic domain orientation therein.

22. A disk drive in accordance with Claim 21 wherein said soft ferromagnetic film structures comprise a transition metal alloy.

23. A disk drive in accordance with Claim 21 wherein said non-ferromagnetic film structures comprise a material selected from the group consisting of metallic materials and non-metallic materials.

24. A disk drive in accordance with Claim 21 wherein said non-ferromagnetic film structures are formed to adjust tensile stress generally perpendicularly to patterned edges of said soft ferromagnetic film structures.

25. A disk drive in accordance with Claim 21 wherein one or both of said soft ferromagnetic film structures and said non-ferromagnetic film structures are electroplated structures.

26. A disk drive in accordance with Claim 21 wherein one or both of said soft ferromagnetic film structures and said non-ferromagnetic film structures are non-plated deposited structures.

27. A disk drive in accordance with Claim 21 wherein said soft ferromagnetic film structures comprise a material from the group consisting of alloys of nickel-iron (permalloy), nickel-iron-cobalt alloys, Sendust and cobalt-zirconium-niobium alloys.

28. A disk drive in accordance with Claim 21 wherein said non-ferromagnetic film structures comprises a material from a first metal group consisting of palladium, copper and

nickel-phosphorus alloy or a second non-metal group consisting of oxides of alumina and oxides of silicon.

29. A disk drive in accordance with Claim 21 wherein said soft ferromagnetic film structures define the entirety of said pole pieces.

30. A disk drive in accordance with Claim 21 wherein said soft ferromagnetic film structures define the pole tips of said pole pieces.